

## CLAIMS

1. A multicolor display apparatus, comprising:

an array of semiconductor nanocrystals arranged to form a plurality of pixels of different colors;

a pixel addressing system operatively associated with the nanocrystal array for selectively optically exciting the nanocrystals to produce a luminescent color pattern of pixels.

2. The apparatus of Claim 1 wherein the pixel addressing system includes a backlight source.

3. The apparatus of Claim 2 wherein the backlight source is a source of ultraviolet light or blue light.

4. The apparatus of Claim 1 wherein the pixel addressing system comprises a multi-element backlight source, wherein each source element is independently operable.

5. The apparatus of Claim 4 wherein the source elements are LEDs or semiconductor lasers.

6. The apparatus of Claim 5 wherein the source elements are sources of ultraviolet light or blue light.

7. The apparatus of Claim 1 wherein the pixel addressing system comprises:  
a backlight source;  
a liquid crystal modulator positioned between the backlight source and the nanocrystal array.

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A2 8. The apparatus of Claim 7 further comprising an analyzer positioned between the backlight source and liquid crystal modulator.

9. The apparatus of Claim 8 further comprising a polarizer positioned between the backlight source and liquid crystal modulator.

10. The apparatus of Claim 7 wherein the backlight source is a source of ultraviolet light or blue light.

11. The apparatus of Claim 7 wherein the backlight source is an end pumped slab laser.

12. The apparatus of Claim 1 wherein the pixel addressing system comprises a modulated laser whose output beam is raster scanned over the nanocrystal array.

13. The apparatus of Claim 12 wherein the laser is a source of ultraviolet light or blue light.

14. The apparatus of Claim 1 wherein the nanocrystal array is formed of nanocrystals which each emit light of one of the three primary colors red, green, and blue, arranged to form red, green, or blue pixels respectively.

15. The apparatus of Claim 1 including nanocrystals which emit light at other than the primary colors red, green and blue.

16. The apparatus of Claim 1 further comprising a long-pass filter placed over the nanocrystal array.

17. The apparatus of Claim 2 wherein the nanocrystal array is formed on a transparent plate and the transparent plate is positioned between the nanocrystal array and the backlight source.

18. The apparatus of Claim 2 wherein the nanocrystal array is formed on a transparent plate and the nanocrystal array is positioned between the transparent plate and the backlight source.

19. The apparatus of Claim 2 wherein the nanocrystal array is formed on the backlight source.

20. The apparatus of Claim 2 wherein the backlight source is a blue light source and blue pixels are formed by open spaces in the nanocrystal array.

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